Comanche Station Bottom Ash Pond
EPA/CDPHE Conference Call July 1, 2020
Summary of Discussions

Participants

- EPA HQ
  - Richard Huggins, Chief Energy Recovery and Waste Management
  - Laurel Celeste, Senior Attorney, OGC
  - Pete Raack, Attorney Enforcement
  - Stephen Churchill, hydrogeologist remediation/enforcement
- EPA Region 8
  - Janice Pearson, Chief RCRA/OPA Enforcement and Compliance
  - Linda Jacobson, Inspector, Enforcement and Compliance
  - Treasure Bailley, Technical Reviewer, Technical Assistance Branch
- CDPHE Solid Waste Permitting Unit
  - Jerry Henderson, Unit Leader
  - Jill Parisi, Permitting Engineer
- Xcel Energy/Public Service Company of Colorado (PSCo)
  - Brent Heffington (Comanche Director), Renee Bodry (Comanche environmental), Jon Bloomberg (legal), Quinn Kilty (Manager environmental), Jennifer McCarter (CCR SME), Roger Clarke (CCR SME), Christine Johnston (NPDES/ELG SME), James Ruch (Engineer/PM)

Regulatory update provided by Richard Huggins

- EPA published (June 30, 2020) its Spring Regulatory Agenda; select key rule dates/status below:
  - Part A at OMB; final publication *estimate* ~ July 2020
  - Part B not yet at OMB; final publication *estimate* ~ Sept. 2020
  - Federal Permit Program – draft indicated final publication date of December 2020, but likely slip a few months
- EPA cannot discuss Xcel Energy's comment letters on the various rulemakings since the comment period has closed. However, Xcel Energy can restate the substance of its comments but cannot add anything new to discussion.

Comanche path forward (to 2025?)

- Xcel Energy expressed its commitment to continue compliance and the importance of operation of the bottom ash pond until 2025, just two years past the cease receipt 'no later than' date of 2023 in the proposed rule for impoundments <40 acres. Xcel Energy also indicated it would like to explore options to continue operation of the BAP through 2025, which is the date certain for retirement of the generating unit(s) that utilize this pond.
- If no alternate path is available, Xcel Energy intends to apply for a Part B liner equivalency demonstration focusing on the low permeability characteristics of the Pierre Shale as protective of the uppermost aquifer in the Dakota Sandstone. Xcel Energy plans to implement additional site specific hydrogeologic characterization work in 2020 to support such a demonstration.
- Xcel Energy asked if there would be opportunity for additional consultation with EPA prior to submittal of the demonstration. EPA indicated that there would be opportunity to consult w/EPA Region 8 prior to submittal

Xcel Energy's CCR Rule implementation to date at Comanche

- Xcel Energy views the site to be compliant with the CCR Rule. As with all its other sites subject to the rule, Xcel Energy initially implemented the groundwater monitoring, system certification and all other applicable requirements of the rule. Xcel Energy reiterated that this site does not fit within the framework of the rule (i.e. - square peg in round hole). Multiple site-specific hydrogeologic investigations consistently describe the uppermost aquifer as being located ~1500' below ground surface in the Dakota Sandstone, with no reasonable probability to impact the aquifer based on site lithology (1,500 feet of low permeable Pierre Shale).
- Xcel Energy does not believe that this pond has any reasonable probability of adverse effects on health or the environment and is committed to developing the information to make that demonstration.
- The CCR Rule requires monitoring of uppermost aquifer, and these investigations, combined with site-specific groundwater monitoring data suggest that what was being monitored was a discontinuous pocket of perched water and there was no reasonable probability for facility to impact the uppermost aquifer (in Dakota Sandstone).
- Based upon review by Xcel Energy's consultant of the consistent conclusions of these multiple investigations, and the results of groundwater monitoring at the site between 2016 and 2017 which indicated the water being monitored was localized and perched, Xcel Energy concluded that continued sampling of the perched water at these CCR units, while representing the best available 'fit' with the rule, was not providing meaningful information and was at best a surrogate to monitor potential impacts from the CCR units until further site specific information and agency concurrence regarding the future of site monitoring could be obtained. Xcel Energy then suspended groundwater sampling at the site but continued to measure groundwater levels semi-annually.
- In early 2020, Xcel Energy made the decision to resume groundwater sampling with the first set of semi-annual samples taken in March 2020 and the next sampling event is scheduled for September 2020.
- Similarly, in reviewing the data to date, Xcel Energy determined that additional information would be useful to further characterize the site conditions. Xcel Energy plans to conduct a hydrogeologic investigation in the summer 2020. The planned investigation is a phased approach in which the findings of each boring will inform the next steps. The primary objectives include evaluation of
    - Presence, depth and continuity of groundwater above/below bedrock contact
    - Bedrock fracture density, permeability, vertical and horizontal migration potential; packer testing
    - Groundwater gradient and flow direction (if it exists)
    - Background water quality (if possible)
- Xcel Energy suggested and EPA expressed interest in providing input on the investigation work plan. EPA provided preliminary input to Xcel Energy's summary presentation of planned work scope
    - There should be a quantitative protocol for borehole moisture evaluation; more than just geologist visual observation
    - Geologic characterization should be detailed and consider mineralogy
    - Flow direction; consider colloidal borescope

- Regarding the phased approach, Stephen Churchill suggested the need to understand permeability and evaluate additional steps if bedrock is competent and dry.

EPA's Technical Memorandum, June 1, 2020; Revised 6/16/2020

- The group discussed technical content of the memorandum which included the site-specific conditions at Comanche Station, possible source of water observed in monitoring wells, characteristics of aquifers and the presence of supply wells in the vicinity of the plant. EPA's described its observations and recommendations and Xcel Energy provided updates, clarifications and its plan going forward.
- Xcel Energy resumed groundwater monitoring in March 2020. The next semi-annual detection monitoring event is scheduled for September 2020. Additional phased hydrogeologic investigation being planned to improve understanding of site and to improve groundwater monitoring system. EPA views this as important, along with planned hydrogeologic investigation.
- Monitoring the Dakota Sandstone aquifer would require wells in excess of 1,500' deep. Xcel Energy asked if EPA was aware of any similar sites with a small pond and very deep aquifers under low permeability geologic unit, and how are they handling? EPA HQ and Region 8 indicated they are not aware of any. Xcel Energy expressed that trying to monitor an aquifer at that depth, particularly from wells at the waste unit boundary would not be effective in evaluating potential impacts from the impoundment. Treasure Bailley indicated that there had been no site-specific characterization to support the argument that there was no potential for vertical migration to the Dakota aquifer. Without site specific information, Xcel would not be in a position to claim there exists no potential for impacts to the Dakota aquifer. Stephen Churchill indicated that given that there is at least one defined aquifer (Dakota SS) beneath the facility, he doesn't see a way in the existing rule language for Xcel to avoid monitoring groundwater. But it may be in their best interest to find an aquifer in the Pierre Shale, versus having to drill 1500' into the Dakota sandstone or alternatively, sticking with the unconsolidated zone they are already monitoring. Therefore, he recommends going deeper than the proposed 20 feet (in minimal or no fracture zones) to locate groundwater in the Pierre Shale. Treasure Bailley stated the importance of showing that the pond does not have ability to impact nearby wells (no migration potential).

Next Steps

- Xcel Energy to provide draft meeting summary for review/comment by group, then final
- Xcel Energy and Region 8 staff will discuss modification/implementation of additional work in the planned investigation
- Xcel Energy to provide EPA additional detail on hydrogeo Scope or Work (SOW); w/in the next couple of weeks Xcel Energy and Region 8 staff will discuss the SOW and any modifications prior to implementation; the drilling that is currently planned for w/o July 6th will be rescheduled accordingly.
- Technical team will be Treasure Bailley and Linda Jacobson from Region 8, Steve Churchill from HQ, Jill Parisi from CDPHE, Jennifer McCarter and Quinn Kilty from Xcel Energy, Matt Rohr and Molly Reeves from HDR (Xcel Energy's consultant)